



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,304	07/29/2003	Alma L. Coats	14974.0002	4474
7590	10/06/2005		EXAMINER	
STEPTOE & JOHNSON LLP Attn: Docket Administrator - Box USPTO 1330 Connecticut Avenue , NW Washington, DC 20036			HAMILTON, CYNTHIA	
			ART UNIT	PAPER NUMBER
			1752	

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.	Applicant(s)	
	10/628,304	COATS ET AL.
	Examiner Cynthia Hamilton	Art Unit 1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on 07 July 2005.  
2a) This action is FINAL.                    2b) This action is non-final.  
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 1-21,23,24,26-57 and 68-83 is/are pending in the application.  
4a) Of the above claim(s) 9,13,14,23,24,29,32-55 and 77 is/are withdrawn from consideration.  
5) Claim(s) \_\_\_\_\_ is/are allowed.  
6) Claim(s) 1-8,10-12,15-21,26-28,30,31,56,57,68-76 and 78-83 is/are rejected.  
7) Claim(s) 77 is/are objected to.  
8) Claim(s) 1-21,23,24,26-57 and 68-83 are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.  
10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:  
    1. Certified copies of the priority documents have been received.  
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
    Paper No(s)/Mail Date \_\_\_\_\_.  
4) Interview Summary (PTO-413)  
    Paper No(s)/Mail Date. \_\_\_\_\_.  
5) Notice of Informal Patent Application (PTO-152)  
6) Other: \_\_\_\_\_.

**DETAILED ACTION**

1. The examiner notes for the record that the five-component resin set forth in claim 1 as now amended is newly presented with an amendment after the last Office action. Thus, no rejection was made in view of this resin, as applicants did not claim it by the time of the last Office Action. No claim before this amendment was made for a resin with a first acrylate monomer, two urethane acrylates and a polymerization modifier and a stabilizer all in one claim. The examiner notes for the record that claim 56 has been amended to exclude the second acrylate monomer and has had added a stabilizer which previously with respect to claim 56 was limited by a photoinitiator as in claim 57. Thus, the limits set forth in claim 56 are firstly being addressed by examination in this action as well. The examiner notes for the record that claims 68-83 are newly added thus being examined for the first time with this action. In view of this all of the claims are changed in scope and content from those presented for examination both on September 9, 2004 and April 7, 2005.

2. For clarification purposes the examiner again set forth Example 1 which is the elected species below:

**EXAMPLE 1**

[0105] A general purpose resin was prepared with the following components, which are listed both as a % by volume and as a percent by weight:

COMPONENT	% VOLUME	% BY WEIGHT
CN964E75	38.25	37.83
SR494	48	48.74
CN965	10	9.9
SR1135	1.75	1.75
TIN292	2	1.78

[0106] In this regard, it should be noted that CN964E75 and CN965 both contain urethane acrylate oligomers. SR494 is an ethoxylated pentaerythritol tetraacrylate. SR1135 is a photoinitiator and TIN292 is a stabilizer. In particular, CN964E75 includes an aliphatic urethane acrylate (75 to 90% by weight) and ethoxylated trimethylolpropane triacrylate esters (10 to 25% by weight). SR494 is an ethoxylated pentaerythritol tetraacrylate (100% by weight). CN965 is an aliphatic urethane acrylate (100% by weight). SR1135 is a mixture including 2,4,6-trimethylbenzoyldiphenylphosphine oxide, alpha hydroxyketones and benzophenone derivatives and includes 2-hydroxy-2-methyl-1-phenyl-1-propanone (22 to 26% by weight) and 2,4,6-trimethylbenzophenone (6 to 7% by weight). TIN292 can be purchased from CIBA, Inc. All of the other components are sold by Sartomer Company, Inc.

[0107] To prepare a general purpose resin, CN964E75 was blended with CN965. To this mixture was added SR 494. To this SR1135 and TIN292 were added. The final weight % of each component is described above in the table.

With respect to instant claim 1, the elected member of the first urethane acrylate oligomer Markush group is the aliphatic polyester based urethane diacrylate oligomer. The other members are drawn to non elected urethane acrylates. The elected first acrylate monomer is either the

Art Unit: 1752

ethoxylated trimethylolpropane triacrylate ester or the ethoxylated pentaerythritol tetraacrylate with the remaining one being the second acrylate monomer. Either can be the polymerization modifier. The elected second urethane acrylate oligomer is the an aliphatic urethane acrylate called CN 965. The elected photoinitiator is a mixture of 2,4,6-trimethylbenzoyldiphenylphosphine oxide, and an alpha hydroxy ketone of some kind in SR 1135 and 2 hydroxy 2 methyl 1 phenyl 1 propane and 2,4,6-trimethyl benzophenone with the stabilizer being bis (1,2,2,6,6-pentamethyl 4 piperidyl) sebacate which is Tinuvin 292 and also known as a generic hindered amine stabilizer. The examiner notes for the record that applicants on page 11, lines 13-20, or their original specification disclose that the second urethane acrylate oligomer can be the same or different from the first urethane acrylate. Applicants also disclose on the same page that the second acrylate may be the same or different from the first acrylate.

This broad scope for these terms is taken into consideration in the following rejections.

3. Claim 82 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 82 is dependent upon claim 688. There is no claim 688.

The examiner has examined claim 82 as if it depends upon claim 68 below this point.

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 1752

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

*Q101105* 6. Claims 1-8, 10-12, 15-21, ~~23~~, 26-28, 30-31, and 68-76 and 78-82 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The use of "based" with respect to the "aliphatic polyester based urethane diacrylate oligomer" found in line 4 of claim 1 and lines 2-3 of claim 68 leave unclear how "based" further limits "aliphatic polyester urethane diacrylate oligomer". The addition of the word "based" to an otherwise definite expression extends the scope of the expression so as to render it indefinite.

*Q101105* 7. Claims 1-8, 10-12, 15-21, ~~23~~, 26-28, 30-31, 68-76 and 78-82 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In lines 4-5 of claim 1 is found "a hard aliphatic urethane acrylate oligomer". The use of "hard" with respect to such a compound leaves unclear what is meant. All reference to hardness in the original specification and claims is drawn to the final cured product obtained from a mixture of materials. There is no reference to hard only in to limits of the aliphatic urethane acrylate oligomer found by this examiner. Without explanation, a worker of ordinary skill in the art would not be able to determine the limits "hard" places on the class of aliphatic urethane acrylate oligomers. Thus,

*Q101105* claims 1-8, 10-12, 15-21, ~~23~~, 26-28, 30-31, and 68-76 and 78-82 are indefinite.

8. Claims 68-76 and 78-82 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 68 requires the presence of "a polymerization modifier selected from the group consisting of isobornyl acrylate, ethoxylated (5) pentaerythritol

Art Unit: 1752

tetraacrylate, an aliphatic urethane acrylate, tris-(2-hydroxyethyl) isocyanurate triacrylate and mixtures thereof". In claim 75, the modifier "includes a polyvalent acrylate". In claim 76, the modifier "includes a second acrylate monomer". Claim 77 reads as follows:

77. (New) The liquid stereolithography resin of claim 68, wherein the polymerization modifier is selected from the group consisting of a trimethylolpropane triacrylate, a bisphenol A dimethacrylate, a tripropylene glycol diacrylate, a pentaerythritol tetraacrylate, a 2-(2-ethoxyethoxy)ethylacrylate, a tris(2-hydroxyethyl)isocyanurate triacrylate, an isobornyl acrylate, and mixtures thereof.

The language in claim 68 is written in Markush form and as such indicates a closed group wherein no other members beyond that specified can be entered. Thus, in view of claim 77 wherein clearly other members outside the group of claim 68 are given as members of the polymerization modifier group, the limits of what is a "polymerization modifier" in claims 68-82 is unclear. See particularly MPEP 2173.05(h). The examiner suggests applicants rewrite claim 68 as "a polymerization modifier comprising a member selected from the group consisting of" if the intention is not to limit the polymerization modifier to the members cited in claim 68 alone. The examiner has examined the invention as if no such limit was intended in view of claim 77. However, she will maintain this rejection if the issue of clarity with respect to the intended meaning is not cleared up by applicants.

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1752

10. Claims 1-2, 4-6, 18-19, 56-57 and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clabburn et al (WO 02/39183 A1). The examiner notes for the record that the Provisional Application 60/438496 has no disclosure to CN990. The effective filing date for claims 1-55 is July 29, 2003. Thus, the publication date, i.e. 16 May 2002, of Clabburn et al is sufficient under 35 USC 102 (b) with respect to 35 103(a) for this rejection. The MCL306 in TABLE 11 on page 39 of Clabburn et al teaches the instant compositions of claims 1-2, 4-6, and 18-19 with the exception of using a stabilizer where, in Clabburn et al, Figure 11 shows the structure of Daracure 1173, POEA and PVA in Clabburn et al and CN 990 which is an aliphatic urethane containing bound silicone is as identified by applicants in claim 1 and reads on both the first urethane acrylate oligomer and the second urethane oligomer and on page 10 is referenced as being a species of the same structure in claim 56. The first acrylate is the same as the second acrylate. The examiner notes for the record that applicants on page 11, lines 13-20, or their original specification disclose that the second urethane acrylate oligomer can be the same or different from the first urethane acrylate. Applicants also disclose on the same page that the second acrylate may be the same or different from the first acrylate. On the bottom of page 40 of Clabburn et al the formulations set forth stated as more or less viscous liquid in the unpolymerized state and form. Thus, MCL306 is liquid as required by the claim language. The modifier is Daracure 1173 and or PVA. POEA is the acrylate compound. With respect to the use of a stabilizer, Clabburn et al on page 7 the addition of stabilizers and oxygen stabilizers on page 8 and on page 20 the use of oxygen inhibitor or anti-oxidant in the formulation to improve shelf life and or to minimize interference by atmospheric oxygen in the polymerization of the material whilst it is exposed to atmosphere thus are stabilizers for the compositions set forth.

Art Unit: 1752

With respect to instant claims 1-2, 4-6, 18-19, 56-57 and 83, the addition of any of the oxygen inhibitors, anti-oxidants or stabilizers to any of the compositions of Clabburn et al would have been *prima facie* obvious to stabilize the shelf life of the compositions. The examiner notes that the compositions made obvious are outside those of the elected invention of instant example 1.

11. Claims 1-2, 4-8, 10, 18-19, 56-57, 68-69, 71-76, 78-79 and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ojeda et al (6,326,072). With respect to instant claims 1-2, 4-8, 10, 18-19, 56-57, 68-69, 41-76 and 83, the compositions of Table 2 from Ojeda et al wherein Darocur 4265 is the polymerization modifier teach species of the instant compositions with the exception of a stabilizer wherein CN 964 is present and is both the first and second urethane acrylate and is disclosed by applicants to be an aliphatic polyester urethane diacrylate. In each one as well with the monomers being in Table 1 of Ojeda et al. The Tables from col. 13 and 14 respectively in Ojeda et al are as follows:

TABLE 1

40

Acrylate Monomers and Abbreviations

Acrylate	Abbreviation	
Trimethylol propane triacrylate	TMPTA	45
Ethoxy ethoxy ethyl acrylate	EEEA	
Dipentaerythritol pentaacrylate	DPP	
Ethoxylated trimethylol propane triacrylate	TMPEOTA	
Tripropylene diacrylate	TRPGDA	
Tetrahydrofurfuryl acrylate	THFA	
Cyclohexyl acrylate	CHA	
Tetraethylene diacrylate	TEGDA	50
Phenoxy ethyl acrylate	POEA	
Caprolactone acrylate	CLA	
Isobornyl acrylate	IBOA	
Tetrahydrofurfuryl methacrylate	THFMA	
Aliphatic Urethane Acrylate	CN 964	55

TMPEOTA is the an ethoxylated trimethylol propane triacrylate and both the first acrylate and the second acrylate and at times the polymerization modifier. With respect to the addition of a stabilizer, Ojeda et al in col. 7 staring in line 47 and going to line 46 in col. 8, teach the option of adding a light stabilizer, or ultraviolet antioxidant or free radical scavenger or antioxidant to their compositions, thus with respect to instant claims 1-2, 4-8, 10, 18-19, 56-57, 68-69, 41-76, 78-79 and 83, the addition of such for stabilization and the other reasons given to any of the compositions set forth would have been *prima facie* obvious. The compositions of Ojeta et al are not the same as the elected species in that there is no requirement for a second aliphatic urethane acrylate like CN 965 required present nor are there a requirement for ethoxylated pentaerythritol tetraacrylate to be present as the second acrylate.

## 14

TABLE 2

UV Cure Acrylate Formulations and Cross Hatch Adhesion Results

Example	Weight Percent CN 964	Acrylate Monomer	Weight Percent Acrylate Monomer	Weight Percent Darocur™ 4265	% Polymer Retained sPS
2	80%	TMPTA	20%	1%	0%
3	80%	EEEA	20%	1%	1%
4	80%	DPP	20%	1%	0%
5	80%	TMPEOTA	20%	1%	0%
6	80%	TRPGDA	20%	1%	0%
7	80%	THFA	20%	1%	1%
8	80%	CHA	20%	1%	0%
9	80%	TEGDA	20%	1%	0%
10	80%	POEA	20%	1%	0%
11	80%	CLA	20%	1%	1%
12	80%	IBOA	20%	1%	0%
13	80%	THFMA	20%	1%	0%

12. Claims 1-2, 7 and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Ibata et al (4,006,024). With respect to instant claims 1-2, 7 and 18-21, the Run Numbers 9 through 10 in Table 1 of Ibata et al anticipate the instant composition wherein Synthesis 10 is drawn to a mixture of aromatic urethane acrylate oligomers which read on the mixture of the first urethane acrylate oligomer and the second urethane acrylate oligomer. The use of a mixture of 2,4-tolylene diisocyanate and 2,6-tolylene diisocyanate with polyethylene adipate diol then with the isocyanate terminated product thereof with finally hydroxyethyl methacrylate yields a mixture of aromatic polyester urethane diacrylate prepolymers, i.e. oligomer, with hydroquinone added as a heat stabilizer. Example 1 in Ibata et al teaches the addition to this mixture of benzoin as a photoinitiator. Table 1 shows the addition of 2-hydroxy ethyl methacrylate, i.e. the instant first

Art Unit: 1752

acrylate monomer, and the addition of n,n'-methylene bisacrylamide and n-butyl acrylate and sometimes addition of styrene or acrylamide, any of which could be the instant polymerization modifier. With respect to instant claim 19, w=0 thus no L is present thus all L's met the definition in claim 19.

13. Claims 1-2, 4, 6, 10, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Duecker (5,881,194). With respect to instant claims 1-2, 10 and 18-21, claim 7 of Duecker sets forth a composition to be cured to form an optical fiber array that anticipates the instant composition. The composition cured is comprised of 64 to 80 percent of a silicone-modified aliphatic polyether urethane acrylate which reads on instant "aliphatic urethane containing bond silicone", and the monomers (b) and (c) of claim 1 of Duecker read on the first acrylate monomer and second acrylate monomer and or polymerization modifier of the instant invention, and the polyester based aliphatic urethane acrylate oligomer is the instant "second urethane acrylate". With respect to instant claims 1-2, 4, 6, 10, and 20-21, Example 1 of Duecker discloses a species which anticipates the unelected aliphatic urethane containing bound silicone wherein this urethane is both the first and second urethane and trimethylolpropane triacrylate is both first and second acrylate as well as photoinitiator as set forth in instant claim 4. Stearyl acrylate is the polymerization modifier as well as the second or first acrylate

14. Claims 1-2, 4-8, 10-12, 15-21, and 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duecker (5,881,194). With respect to instant claims 1-2, 10 and 18-21, claim 7 of Duecker sets forth a composition to be cured to form an optical fiber array that anticipates the instant composition. The composition cured is comprised of 64 to 80 percent of a silicone-modified aliphatic polyether urethane acrylate which reads on instant "aliphatic urethane

Art Unit: 1752

containing bond silicone", and the monomers (b) and (c) of claim 1 of Duecker read on the first acrylate monomer and second acrylate monomer and or polymerization modifier of the instant invention, and the polyester based aliphatic urethane acrylate oligomer is the instant "second urethane acrylate". An example given by Duecker of the polyester based aliphatic urethane acrylate oligomer is found in his Example 7 as Ebecryl 284 which is an aliphatic polyester urethane diacrylate in 1,6 hexanediol diacrylate. The monomers used for the (C) monomer of Duecker set forth in col 5, include isobornyl acrylate and the (B) monomer of Duecker with examples given in col. 4 included trimethylolpropane ethoxylated triacrylate. With respect to instant claims 1-2, 4-8, 10-12, 15-21~~,22~~, and 56-57, the use of any of the explicit examples of each component in instant claims 1 and 7 set forth in the description of Duecker would have been prima facie obvious to form a radiation-curable matrix composition for adhering cated and inked optical fibers in a ribbon or toehr desired configuration as set forth in col. 3, lines 45-62.

15. Claims 1-2, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Ibata et al (4,006,024) as evidenced by Handbook of Paint Raw Materials. With respect to instant claims 1-2, and 18, the Run Numbers 9 through 10 in Table 1 of Ibata et al anticipate the instant composition wherein Synthesis 10 is drawn to a mixture of aromatic urethane acrylate oligomers which read on the mixture of the first urethane acrylate oligomer and the second urethane acrylate oligomer. The use of a mixture of 2,4-tolylene diisocyanate and 2,6-tolylene diisocyanate with polyethylene adipate diol then with the isocyanate terminated product thereof with finally hydroxyethyl methacrylate yields a mixture of aromatic polyester urethane diacrylate prepolymers, i.e. oligomer, with hydroquinone added as a heat stabilizer. Example 1 in Ibata et al teaches the addition to this mixture of benzoin as a photoinitiator. Table 1 shows the addition

of 2-hydroxy ethyl methacrylate, i.e. the instant first acrylate monomer, and the addition of n,n'-methylene bisacrylamide and n-butyl acrylate and sometimes addition of styrene or acrylamide, any of which could be the instant polymerization modifier. Benzoin is optimum at an absorption range of 250 to 350 nm. Thus, the compositions of Ibata et al inherently contain a photoinitiator that activates polymerization of an acrylate in a wavelength range of 240 to 250 nm as required in instant claim 6.

16. Claims 1-2, 4, 6-8, 10-12, 15-21, 56-57 and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al (6,420,451) as evidenced by Sartomer Application Bulletin and Sartomer (Low Toxicity...) and Sartomer Technical Data Sheet: CN962 and Sartomer Technical Data Sheet: CN 964. With respect to instant claims 1-2, 4, 6-8, 10-12, 15-21, 56-57 and 83, Lin teaches the mixtures of a first acrylated aliphatic urethane, a second acrylated aliphatic urethane, a nonfunctional acrylate, a second aliphatic urethane in combination with a multifunctional acrylate, a photoinitiator and optionally a light stabilizer and/or a flow additive. See particularly the Abstract, and col. 2. In col. 3, lines 1-10, the first acrylated aliphatic urethanes preferably include the difunctional aliphatic acrylated urethanes of CN 962, CN 64, CN 965 and CN 966 and Ebecryl 203 and EBECRYL 230 and 270. The examiner assumed that CN 64 should be CN 964 since this is used in Table 1 with CN 968. No examples of Lin et al make use of the stabilizers but they teach the use of such in col. 4, lines 4-15. Lin et al in Table 1 use all CN 962 and CN 964 and CN 968 for their working Samples. Sample no. 1-5 have mixtures of either CN 964 or CN 962 with CN 968. Sartomer identifies CN 962 and an aliphatic polyester "based" urethane diacrylate oligomer and does the same for CN 964. With respect to the addition of a light stabilizer to the working examples of Lin et al, such is obvious in order to enhance the color

*Gx  
101105*

Art Unit: 1752

of the coating by selecting absorbing radiation. The compositions of Lin et al in TABLE 1 sample no. 1 and 2 anticipate the instant invention wherein CN964 N60 is the first urethane acrylate oligomer CN964 with the monomer SR256 as identified on page 5 of Sartomer Application Bulletin with Sartomer (Low Toxicity...) disclosing on page 3, first column, last partial paragraph that SR-256 is 2,2-(ethoxy ethoxy) ethyl acrylate. The second urethane acrylate is CN 968 and the photoinitiator is methanone, i.e. 1-hydroxycyclohexylphenyl ketone. The second acrylate is HEMA, i.e. hydroxyethyl methacrylate or could be the diacrylate CN968 as for instant claim 10.

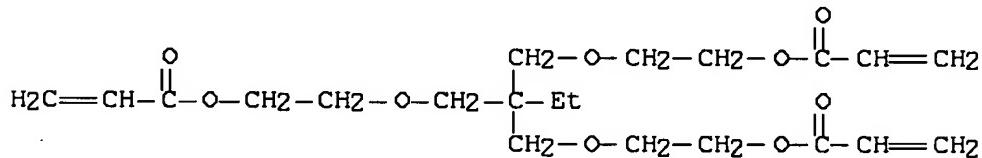
17. Claims 1-2, 4-8, 10, 18-21, 56-57 and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al (6,120,946) in view of Sartomer Application Bulletin: SN-980 Aliphatic High Speed Urethane Acrylate and RN 189146-15-4 and RN 41484-35-9. With respect to instant claims 1-2, 4-8, 10, 18-21, 56-57 and 83, the composition of Transfer Layer 14 formulation A in col. 8 teach the instant composition with the exclusion of the stabilizer. See below:

<u>Transfer layer 14 formulation A</u>		
Base oligomer and polymer blend	SR-444 SB 500 E50 CN 963 E75 SR-9003	62 8 10 <u>20</u>
Additives	Lucirin TPO Irganox 1035	100 1.5 1.5

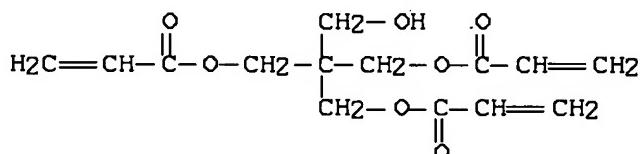
CN 963 E75 is both CN 963 and EO3TMPTA, i.e. ethoxylated (three groups) trimethylol triacrylate. CN 963 is a "Hard aliphatic urethane acrylate oligomer" as described by Sartomer. S-444 is identified in col. 10 of Johnson et al as pentaerythritol triacrylate.

Art Unit: 1752

Lucirin TPO is a photoinitiator and a mixture of 2-hydroxy-2-methyl-1-phenyl-1-propanone and diphenyl (2,4,6-trimethylbenzoyl) phosphine oxide and equivalent to Darocur 4265 according to RN 189146-15-4. Irganox 1035 is as evidenced by RN 41484-35-9. With respect to instant claims 1-2, 4-6, 10, 18-21, and 23, CN 963 is present, ethoxylated trimethylol triacrylate is the polymerization modifier, i.e. trimethylol triacrylate, in instant claim 10. The following is the structure of ethoxylated trimethylol triacrylate



This structure reads on the first acrylate monomer of claim 18 and the second acrylate monomer of claim 21 wherein J=3, K=1, R3 is ethyl and w is one with L being ethyl. The structure of pentaerythritol triacrylate is



This reads on the instant first acrylate in claim 18. Thus with respect to instant claims 20-21, the composition of Johnson et al wherein pentaerythritol triacrylate is the first acrylate and ethoxylated trimethylol triacrylate is the second acrylate with either Irganox or Lucirin TPO being the polymerization modifier or ethoxylated trimethylol triacrylate acting as both polymerization modifier and the second acrylate, teaches a specie of the instant invention

with the exception of a stabilizer. However, with respect to instant claims 1-2, 4-8, 10, 18-21, 23, 56-57 and 83, the addition of an antioxidant is taught by Johnson et al as optional as set forth in col. 7, lines 60-68, and is a “stabilizer” for the composition, thus the addition of such a additive would have been *prima facie* obvious.

1. Claims 1-2, 4, 6-8, 10, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Chawla et al (WO 00/20517). With respect to claims 1-2, 4, 6-8, 10, 18-21, ~~and 23~~, Examples I and II from Table 1 of Chawla et al anticipate the instant composition. The pertinent part of the table is as follows:

Art Unit: 1752

Table 1

Components	EXAMPLES			
	I	II	III	IV
CN 966 J75 <sup>1)</sup>	22.4	22.4	-	-
SRW 238 <sup>2)</sup>	23.0	-	23.0	-
Amino-oligomer A <sup>3)</sup>	35.1	35.1	57.5	57.5
RCC 13-361 <sup>4)</sup>	-	23.0	-	23.0
Ebecryl 350 <sup>5)</sup>	1	1	1	1
BHT <sup>6)</sup>	0.5	0.5	0.5	0.5
N-cyclohexylmaleimide	3.0	3.0	3.0	3.0
Benzophenone	3.0	3.0	3.0	3.0
<u>Clear Coat</u>				
% RAU (0.2 J/cm <sup>2</sup> )	98	99	94	97
% RAU (0.125 J/cm <sup>2</sup> )	98	99	92	95
<u>Pigmented Ink</u>				
% RAU (0.125 J/cm <sup>2</sup> )	91	94	94	95
MEK Rubs*	14	14	32	20
Adhesion to outer primary	Good	Good	Good	good
Release from matrix	Very slight zip	no zip	no zip	no zip

<sup>1)</sup> urethane acrylate in isobornylacrylate, obtainable from Sartomer

<sup>2)</sup> hexanedioldiacrylate from Sartomer

<sup>3)</sup> Amino group containing oligomer from synthesis A

<sup>4)</sup> ethoxylated hexanedioldiacrylate

<sup>5)</sup> silicon acrylate from UCB

<sup>6)</sup> butylated hydroxy toluene

BHT is the stabilizer. Isobornyl acrylate is the first acrylate with in Example I the second acrylate being hexanedioldiacrylate and/or silicon acrylate. In Example 2 Isobornyl acrylate is the first acrylate, then ethoxylated hexanedioldiacrylate is the second acrylate. CN966 is a aliphatic polyester based urethane diacrylate oligomer and both the first and second acrylate urethane oligomer.

Art Unit: 1752

2. Claims 1-2, 4, 6-8, 10-12, 15-17, 21 and 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 2002/0086914 A1). Example 1b in Table 1 on page 12 of Lee et al teaches the instant compositions of claims 1-2, 4, 6-8, 10-12, 15-17, 21, and 56-57 wherein the polyester urethane CN 964 is alleged by applicants to read on the urethane of claims 11, 12, 15-16 and 56 and is both of the urethane acrylates. Thus, the examiner accepts applicants' allegation that CN 964 fits the required structure as the elected first urethane acrylate. In Lee et al see particularly [0112, 0105] and abstract. The acrylates present are hexanedioldiacrylate, isobornyl acrylate and 2-(2-ethoxyethoxy)ethyl acrylate. The photoinitiator is 1-hydroxycycohexyl phenyl ketone. As set forth above, Lee et al in their composition in Table 1 Example 1b discloses all but the required stabilizer, if the choice of the choice of a polymerization modifier is a second acrylate. In [0077-0079], Lee et al teach the addition of ultraviolet light stabilizers such as the TINUVIN series to enhance durability of image especially in the outdoor environments. Thus, with respect to the inks formed from the compositions of Example 1b, the addition of an ultraviolet light stabilizer would have been prima facie obvious to enhance color durability in an image to be used in the outdoors.

3. Claims 9, 13-14, 23-24, 29, 32-55 and 77 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected specie, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on December 9, 2004. Claims 23 and 77 are drawn to trimethylolpropante triacrylate or pentaerythritol tetraacrylate not their ethoxylated derivatives. Thus, since claims 1 and 68 do not claim any modifier found in elected species they are non elected.

Art Unit: 1752

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is 571-272-1331. The examiner can normally be reached on Monday through Friday 9:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571) 272-0729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1752

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



CYNTHIA HAMILTON  
PRIMARY EXAMINER

October 2, 2005

Cynthia Hamilton  
Primary Examiner  
Art Unit 1752